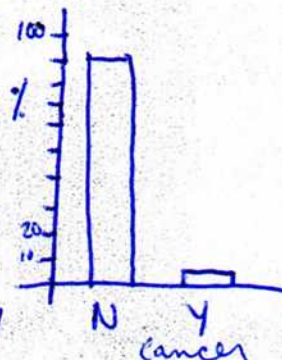


Medical researchers followed 6272 Swedish men for 30 years to see an association could be found between a diet of fish and prostate cancer, one of the leading causes of death of men. The findings were reported in the magazine *Lancet* in June 2001. The results are summarized in the following table.

Fish Consumption	Prostate Cancer		n
	No	Yes	
Never/seldom	110	14	124
Small part of diet	2420	201	2621
Moderate part	2769	209	2978
Large part	507	42	549
	5806	466	6272

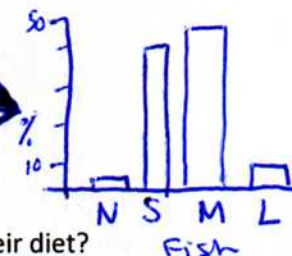


1. What is the marginal distribution of prostate cancer? Do not make a bar graph.

No: $\frac{5806}{6272} = 92.6\%$ | Yes: $\frac{466}{6272} = 7.4\%$

2. What is the marginal distribution of fish consumption? Do not make a bar graph.

Never: $\frac{124}{6272} = 2.0\%$ | Mod: $\frac{2978}{6272} = 47.5\%$
 Small: $\frac{2621}{6272} = 41.8\%$ | Large: $\frac{549}{6272} = 8.8\%$



3. What percent of men had no prostate cancer and fish were a moderate part of their diet?

$\frac{2769}{6272} = 44.1\%$

4. What percent of men with prostate cancer had fish as a small part of their diet?

$\frac{201}{466} = 43.1\%$

5. What percent of men had no prostate cancer given that they had fish as a large part of their diet?

$\frac{507}{549} = 92.3\%$

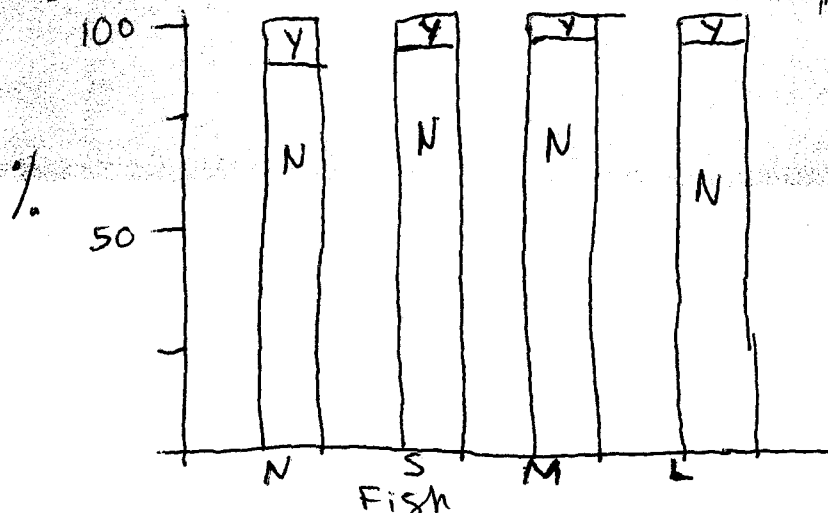
6. What is the conditional distribution of prostate cancer?

	<u>NO</u>	<u>Yes</u>	
never	1.9%	3%	N
Small	41.7%	43.1%	S
mod	47.7%	44.8%	M
Large	8.7%	9.0%	L

7. What is the conditional distribution of fish consumption?

	<u>Never</u>	<u>Small</u>	<u>Mod</u>	<u>Large</u>
N	88.7%	92.3%	93.0%	92.3%
Y	11.3%	7.7%	7%	7.7%

8. Create a segmented bar chart for the conditional distribution of fish consumption.



9. Is there an association between fish consumption and prostate cancer? Provide statistical evidence to support your claim.

~~No~~ No, there is no association, meaning the two variables are independent.

We can see this because the marginal distribution of fish consumption (#2) ~~is~~ approximated matches the conditional distrib. of prostate cancer.

For example, overall we had about 2% ~~prostate cancer~~

of people that had never eaten
fish ~~corroded~~. We also had about
2% (1.9% and 3%) ~~corroded~~ that
had never eaten fish in
both the prostate YES and NO
variables. They are the same
so eating fish doesn't affect
whether you get prostate cancer